In the Specification

Please replace the paragraph beginning at page 6, line 1, with the following rewritten paragraph:

The core 2 of Fig. 1a is made azimuthally asymmetric by indentations 4. In this illustration of the novel perform or waveguide fiber, the indentations comprise the same material as that of the clad layer 6. The perpendicular sections through the core, ~~AA' and BB'~~1B and 1C in Figs. 1B and 1C, respectively, show the azimuthal variation in width of the step index profile. This particular profile is symmetric in the radial direction.

Please replace the paragraph beginning at page 6, line 6, with the following rewritten paragraph:

The preform or waveguide core of Fig. ~~1b~~1D is both radially varying and azimuthally asymmetric. In this illustration of the novel waveguide or perform, the core is divided into four sectors. Each of the two diagonally opposed sectors, 8 and 10 are mirror images of each other as is shown by the sections ~~AA' and BB'~~1E and 1F taken through the core. The radial dependence of the ~~AA'~~1E profile 16 can be a rounded step or an α-profile. The ~~BB'~~1F profile 18 in Fig. 1F is a step index profile. The clad portions 12 and 14 may comprise any material having a refractive index lower than that of the adjacent core region. That is, the composition of the clad layer is generally limited only by the condition that the core clad structure guide rather than radiate light launched into the waveguide.

Please replace the paragraph beginning at page 6, line 16, with the following rewritten paragraph:

Fig. ~~1c~~ 1G is an example of a more complex structure in accord with the novel preform and waveguide. In this illustration waveguide core or core preform 20 comprises a segmented core having central region 22, and adjoining annular regions 28, 24, and 26. Each region is characterized by a respective relative refractive index Δ %, an index profile and an area determined by radii 32, 34, 36, 38 and 40. For example, central region 22 and annular region 24 may comprise respective germanium doped silica glasses and annular regions 28 and 26 may comprise silica and the relative sizes of the areas may be as shown. The asymmetry is introduced into the core preform by embedded glass volumes 30, which in

general have a refractive index different from that of either annular segment 24 or 26 contacted by the glass volumes 30.

Please replace the paragraph beginning at page 7, line 4, with the following rewritten paragraph:

In another embodiment of the novel preform or waveguide, the core is comprised of matrix glass 50 having embedded glass volumes 42, 44, and 48 as illustrated in Fig. 2a. The glass volumes ~~extent~~ extend from end to end of the preform or the waveguide drawn from the preform. The clad glass layer 52 surrounds the core 50. The refractive index of core glass 50 is higher than that of clad layer 52. Section ~~AA'~~ 2B through one of the embedded volumes shows in Fig. 2B the index profile is a step profile. The sizes of cross sectional area of the embedded glass volumes can be the same or different and a number of relative orientations relative to the clad glass layer are possible.

Please replace the paragraph beginning at page 7, line 13, with the following rewritten paragraph:

The structure of Fig. 2a can be made by drilling a preform, smoothing the walls of the resulting holes, and filling the holes with glass powder or rods. As an alternative, the core can be formed of rods which are then inserted into a holding tube, either with or without the use of spacer glass rods or particles. The need for a holding tube can be eliminated by welding the rods together using appropriate glass spacer material. The overclad layer can be deposited over the welded assembly of rods or can be fabricated as a tube which is ~~shrink~~ shrunk onto the assembly before or during draw.

Please replace the paragraph beginning at page 7, line 21, with the following rewritten paragraph:

Another embodiment which includes a matrix glass and a plurality of embedded glass volumes is shown in Fig. ~~2b~~2C. Here the gross structure of waveguide 54 is similar to that of Fig. 2a, except that the embedded glass volumes 56, 58 and 60 each have a segmented core refractive index profile. An example of the segmented core profile is shown in the ~~AA'~~ 2D cut in Fig. 2D through one of the embedded volumes in which a central region of relatively high Δ % is surrounded by two annular regions. In the illustration, the first annulus 62 is lower in Δ % than the second annulus 64. It is understood that each of the segments may

have a radial dependence selected from a plurality of possibilities, such as an α-profile or a rounded step profile, and the relative Δ %'s of the segments can be adjusted to provide different waveguide functional properties.

Please replace the paragraph beginning at page 8, line 1, with the following rewritten paragraph:

The methods of making the preform or waveguide of Fig. ~~2b~~2C are essentially identical to the method of making the preform or waveguide of Fib. ~~2a~~2A.

Please replace the paragraph beginning at page 8, line 5, with the following rewritten paragraph:

Two additional embodiments of this preform or waveguide type are illustrated in Figs. ~~2e~~2E & ~~2d~~2F. The embedded glass volumes 66, 68, and 70 in Fig. ~~2e~~2E have a rectangular cross section and are arranged substantially at the apexes of an equilateral triangle. Other arrangements of the embedded glass volumes are contemplated such as arrangement along a diameter of the core region. The core region 72 can comprise a number of shapes and compositions. In the simple example illustrated in Fig. ~~2e~~2E, the core glass 72 is a step index profile and, as is required to guide light, has a higher refractive index than at least a portion of the clad layer 74.

Please replace the paragraph beginning at page 8, line 13 with the follow rewritten paragraph:

In Fig. ~~2d~~2F a configuration comprising five embedded glass volumes is illustrated. Here, four glass volumes of diamond cross section 76, 78, 80 and 82 are symmetrically arranged about a circular central core region 84. It is evident that numerous variations of this design are possible. For example the refractive indexes of the embedded volumes 76, 78, 80, 82, and 84 can each have a different relative index as compared to that of the core region 86.